PC8

Panasonic Protocol Converter

Installation Guide

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1. PRE-INSTALLATION CHECKS AND SAFETY PROCEDURES

UNPACKING

Check packaging - Upon taking delivery of the unit, inspect the packaging for signs of damage. If damage has occurred, advise the carriers and/or the suppliers immediately.

Check contents - Upon taking delivery of the unit, unpack the receiver carefully and check that all the items are present and correct. If any items are missing or damaged, contact your equipment dealer.

Retain packaging - The shipping carton is the safest container in which to transport the unit. Retain undamaged packaging for possible future use.

IMPORTANT SAFETY PRECAUTIONS

Read & retain instructions - All relevant safety, installation and operating instructions should be read before attempting to install, connect or operate the unit, and retained for future reference.

Heed warnings - All warnings on the unit and any relevant safety, installation or operating instructions should be adhered to.

Cleaning - Unplug the unit from the power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.

Water and moisture - Do not expose the internal electronics of this unit to water or dampness; for example, in an unprotected outdoor installation, or in any area classified as a wet location. The unit as supplied conforms to ingress protection rating IP67. This rating will be affected by any holes made in the enclosure. Cable entry points should be protected by the use of suitably rated glands and/or flexible conduit. It is not necessary to make further holes in the enclosure for mounting purposes, as mounting holes are provided at the corners of the enclosure outboard of the seal between enclosure and lid.

Accessories - Do not attach this unit to an unstable stand, bracket or mount. The unit may fall, causing serious injury to a person and serious damage to the unit.

Power Sources - This unit should be operated only from the type of power source indicated on the manufacturer's label. If you are not sure of the type of power supply you intend to use, consult your equipment dealer or local power company. For units intended to operate from battery power or other sources, refer to operating instructions.

Overloading - Do not overload outlets and extension cords, as this can result in fire or electric shock.

Object and liquid entry - Never push objects of any kind into the unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on or inside the unit.

Servicing - Servicing of the unit should only be undertaken by qualified service personnel, as opening or removing covers may expose you to dangerous voltages or other hazards.

Damage requiring service - Servicing by qualified personnel should be carried out under the following conditions:

(a) When the power supply cord or plug is damaged;
(b) If liquid has been spilled, or objects have fallen into, the unit;
(c) If the internal electronics of the unit have been exposed to rain or water;
(d) If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to normal operation;
(e) If the unit has been dropped or the enclosure is damaged;
(f) If the unit exhibits a distinct change in performance. This indicates a need for service.

Replacement parts - If replacement parts are required, ensure that only replacement parts recommended by the product manufacturer are used.

Safety check - Upon completion of any service or repairs to the unit, safety checks should be performed to ensure that the unit is in proper operating condition.

Coax grounding - If an outside cable system is connected to the unit, be sure the cable system is grounded.

Pre-installation checks - It is recommended that the unit be bench tested prior to installation on the site.

Adhere to safety standards - All normal safety precautions as laid down by British Standards and the Health and Safety at Work Act should be observed.

WARNING
TO PREVENT DANGER OF FIRE OR SHOCK, DO NOT EXPOSE THE INTERNAL COMPONENTS OF THIS EQUIPMENT TO RAIN OR MOISTURE.

This symbol is used to warn the user of this equipment that there are sufficiently high voltages within the enclosure to constitute a risk of an electric shock.

This symbol is used to warn the user of this equipment to important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Technical Specification

Power Requirements	9Vdc 500mA
Input	2 or 4 wire RS485 (switch selectable, SW3/8) Panasonic RS485 9600,N,8,1 or 19200,N,8,1
Outputs	8 * RS485, either 2 or 4 wire Maximum cable run approx 4000 Feet/1200m
Facilities	LED as power and data indication
Other Outputs	RS232 monitor output via chassis mounted DB9 connector.
Boxed Dimensions	19” 1U rack 100mm deep rack mountable case.

Version History

V10.2 5 Mar 2009	Update to show new 00007-6 PCB format.
V10.1 6 Sept 2007	Addition of notes concerning Vicon dome integration and SX650 matrix firmware.
V10 17 August 2007	Added support for Vicon dome protocol at 4800 or 9600 baud
V9 11 May 2007	Added Wash/Wipe support for Pelco protocol
V8 14 July 2006	Added support for Dennard dome protocol at 9600 baud
V7 8 Sept 2005	Added support for Pelco P at 2400, 4800 or 9600 baud
V2 5 March 2004	Improved control, LED status improved, added support for patrol and path
V1 26 Mar 2003	VCL TP protocol (9600,N,8,1)

2. INTRODUCTION

GENERAL

The unit is designed to allow control of 3rd party domes from a Panasonic control system. It can be configured for either 2 wire, half duplex or 4 wire, full duplex telemetry.

Site communications must be set to either 9600 or 19200 Baud, No parity, 8 data bits and 1 stop bit. (9600 is the preferred baud rate)

It has been tested with the Panasonic SX150 mini matrix, SX550 matrix, SX650 matrix and HD316 DVR in both 2 and 4 wire modes.

A RS232 serial output is provided via a DB9F to aid with diagnostics and trouble shooting.

Panasonic Camera Address Range
The converter is designed to respond to a range of 8 camera addresses. SW5 is used to set the camera range that the converter will respond to. If the switch is set incorrectly it is possible to cause intermittent or sluggish control if any camera shares this address.

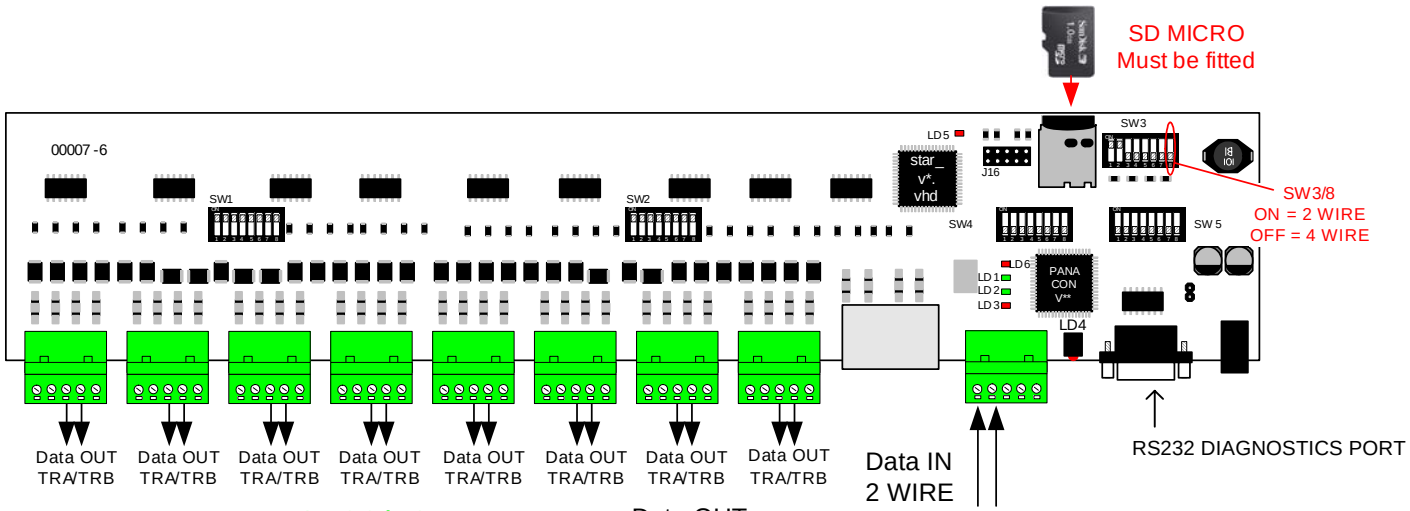
Output Protocol
SW5 is used to select the protocol of the dome that is to be controlled.

The following page shows the details of SW4 and SW5 switch settings.

SX650 matrix notes.
Poor control including just two speed control can be experienced if the wiring or switch settings including the 2/4 wire switches on the rear of the matrix are incorrect.

If these are checked to be correct and control is still poor the matrix firmware may need upgrading. Please contact your Panasonic service department who should be able to provide a link the firmware and upgrade software. The matrix should be running at least V3.01.

Internal view showing switches V12 Software



LD1 = Dome RS422/485 out

LD2 = Panasonic RS422/485 in

LD3 = Checksum ERROR or command for camera out of range

LD5 = Converter Mode

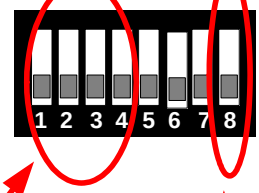
LD6 = Not used

Data OUT
TRA = A/+
TRB = B/-

Data IN
2 WIRE
TRA TA
TRB TB

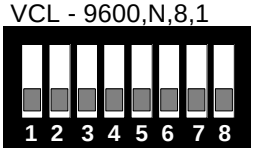
4 WIRE
TRA RA
TRB RB
RA TA
RB TB

SW5 Camera Range

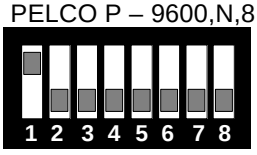


SW4 Output Protocol

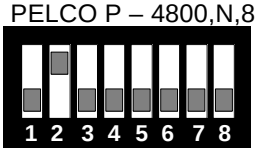
VCL - 9600,N,8,1



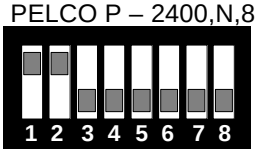
PELCO P – 9600,N,8,1



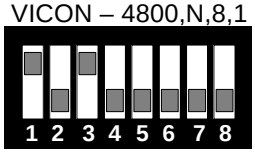
PELCO P – 4800,N,8,1



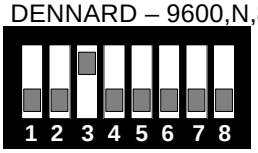
PELCO P – 2400,N,8,1



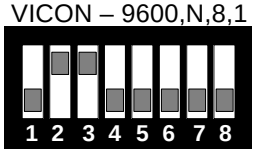
VICON – 4800,N,8,1



DENNARD – 9600,N,8,1



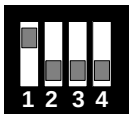
VICON – 9600,N,8,1



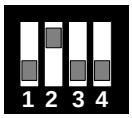
SW5/1-4 Camera range

1 - 8

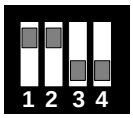
9 - 16



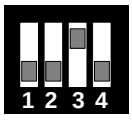
17 - 24



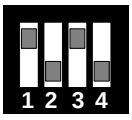
25 - 32



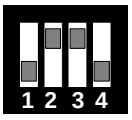
33 - 40



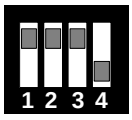
41 - 48



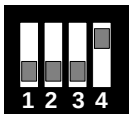
49 - 56



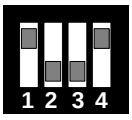
57 - 64



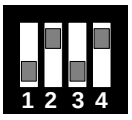
65 - 72



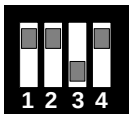
73 - 80



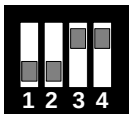
81 - 88



89 - 96



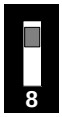
97 - 99



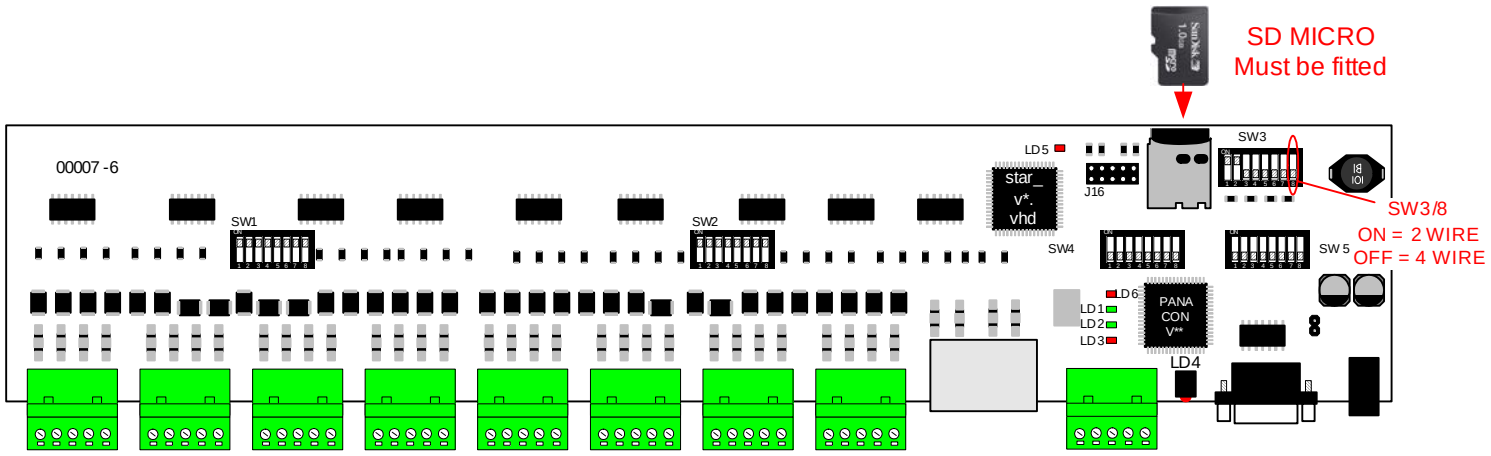
SW5/8
Panasonic Baud

9600

19200



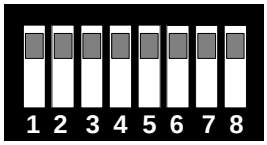
Switch details main Starcard PCB



Starcard PCB Switches

SW1 - RS485 line termination for outputs 1 - 4 ON = termination ON (Default)

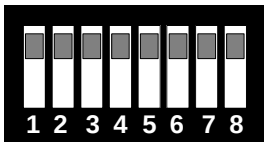
SW1/1 & 1/2 = Output 1 termination
SW1/3 & 1/4 = Output 2 termination
SW1/5 & 1/6 = Output 3 termination
SW1/7 & 1/8 = Output 4 termination



SW1 setting showing termination ON

SW2 - RS485 line termination for outptus 5 - 8 ON = termination ON (Default)

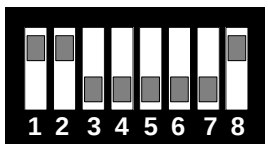
SW2/1 & 2/2 = Output 5 termination
SW2/3 & 2/4 = Output 6 termination
SW2/5 & 2/6 = Output 7 termination
SW2/7 & 2/8 = Output 8 termination



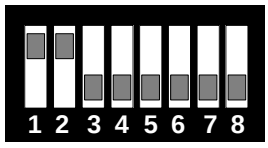
SW2 setting showing termination ON

SW3 - Option selection.
SW3/1 and SW3/2 - RS485 input line termination ON = termination ON (Default)
SW3/3-7 MUST BE OFF
SW3/8 - 2 or 4 wire selection. ON = 2 WIRE, OFF = 4 WIRE

SW3 setting showing 2 wire mode selected and RS485 input termination ON



SW3 setting showing 4 wire mode selected and RS485 input termination ON



VCL TP protocol

Function	Panasonic Procedure
Program preset 1 – 32	As normal
Goto preset 1 – 32	As normal
Enable Privacy zone 100 – 127	Program preset 64 Followed by goto preset 1 – 28 (1 = zone 100)
Disable Privacy zone 100 – 127	Program preset 63 Followed by goto preset 1 – 28 (1 = zone 100)
Define Preset Patrol – START	Program preset 62 Followed by 3 preset commands per preset position PRESET NUMBER - GOTO PRESET 1-32 SPEED - GOTO PRESET 1-63, 64 = fastest DWELL – GOTO PRESET 1-64 (x 2 seconds)
Define Preset Patrol – STOP	Program preset 61
Start Preset Patrol	AUTOPAN
Path 5 LEARN start	PATROL LEARN or Program preset 60 Use joystick to move dome around required path
Path 5 LEARN stop	PATROL STOP or Program preset 59
Path 5 PLAYBACK	PATROL PLAY

Preset positions
The unit supports 32 preset positions per dome. Use the standard Panasonic method to program a preset and also to goto preset.

Preset Tour 1
The dome's preset tour 1 can be defined as follows
PROGRAM PRESET 62 : the converter is now waiting for 3 preset calls per position
GOTO PRESET 1-32 : this is the preset position that is being programmed
GOTO PRESET 1-64 : this is the speed, 1-63 are increasing speeds and 64 is maximum
GOTO PRESET 1-64 : this is the dwell in 2 seconds to stay at the preset position
PROGRAM PRESET 61 : this is the end of the tour definition

Example presets 1,2,8,16
PROGRAM PRESET 62 – start definition
GOTO PRESET 1 – preset position 1
GOTO PRESET 64 – maximum speed
GOTO PRESET 10 – 20 second dwell

GOTO PRESET 2 – preset position 2
GOTO PRESET 20 – slowish speed
GOTO PRESET 15 – 30 second dwell

GOTO PRESET 8 – preset position 8
GOTO PRESET 1 – very slow speed
GOTO PRESET 2 – 4 second dwell

GOTO PRESET 16 – preset position 16
GOTO PRESET 63 – fast speed
GOTO PRESET 1 – 2 second dwell

PROGRAM PRESET 61 – end definition

Privacy Zones
The dome's 28 privacy zones can be set or cleared as follows:

To SET a zone
1. Move the camera to show the scene that is to be blanked.
2. PROGRAM PRESET 64 : SET PRIVACY COMMAND
3. GOTO PRESET 1-28 : PRIVACY ZONE TO USE

The screen will now be blank showing that the privacy zone has been set and enabled.

To CLEAR a zone
1. PROGRAM PRESET 63 : CLEAR PRIVACY COMMAND
2. GOTO PRESET 1-28 : PRIVACY ZONE TO CLEAR

The dome will now show the scene that the privacy zone was originally blanking. If you have made a mistake and this zone must be blanked then without moving the dome just follow the instructions above to SET the zone again.

Learned Path
A path is a learned tour that allows an operator to program the dome to move around specific areas for example a fence line etc. The converter uses VCL tour 5 as the path.

To DEFINE a path
1. Move the dome to the position that you would like the dome to start from.
2. From the matrix keyboard select PATROL LEARN or PROGRAM PRESET 60
3. Use the joystick to move the dome around the required path
4. From the matrix keyboard select PATROL STOP or PROGRAM PRESET 59

To PLAY a path
Press AUTOPAN to start playback of the tour.

Pelco P specific functionality

Manual proportional control of pan/tilt and zoom/focus/iris
Support for preset 1 – 64 (preset 33 should not be used as this is a special Pelco preset)
The dome menu can be displayed using the conventional key strokes used to access dome menus from the Panasonic controller. Please refer to the Panasonic manual for this information.

Once the dome menu is displayed the joystick is used to navigate the cursor and the CAM or ENTER key is used to simulate the Pelco IRIS OPEN key.

When navigating the dome menu you must wait for approx 2 seconds between repeated ENTER key presses to allow control with the HD316 DVR range.

Once EXIT is selected from the dome menu you must perform a camera “setup off” from the Panasonic controller otherwise pan/tilt control will be slow and fixed speed.

DENNARD protocol

Function	Panasonic Procedure
Program preset 1 – 32	As normal – refer to Panasonic Manual
Goto preset 1 – 32	As normal – refer to Panasonic Manual
Display Menu	As normal – refer to Panasonic Manual
	Use the Joystick to move the dome cursor and either the joystick button or ENTER. In addition GOTO PRESET 1 can be used as enter.
Patrol playback	Either AUTOPAN or PATROL

Ensure that the dome address matches the address that the Panasonic equipment is sending using the Yellow and Blue rotary switches in the dome.

Preset positions
The unit supports 32 preset positions per dome. Use the standard Panasonic method to program a preset and also to goto preset.

The dome may display a message asking “Edit Preset Text: YES/NO” after a program preset is sent from the controller. Use the joystick to select YES or NO and send “GOTO PRESET 1” as ENTER. This is a dome feature.

VICON protocol (4800 or 9600 baud)

Function	Panasonic Procedure
Program preset 1 – 32	As normal – refer to Panasonic Manual
Goto preset 1 – 32	As normal – refer to Panasonic Manual
Display Menu	As normal – refer to Panasonic Manual Use the Joystick to move the dome cursor and either the joystick button or SET. SET sends an AP command ESC sends an AI command AUX1 & AUX2 are also used within the Vicon menu.
TOUR 80 playback	PATROL
AUTOTOUR 88 playback	AUTOPAN

Ensure that the dome address matches the address that the Panasonic equipment is sending using the address switch on the dome base plate.

Supports 4800 and 9600 baud rates. Please select the baud rate required using SW1 as diagram on page 6.

With a Vicon Surveyor 2000 dome ensure the following switch settings are used.
VPS
DUPLEX
RS422

Data connection between PC8 and dome

PC8	Dome
TRA	COMM IN+
TRB	COMM IN-

Notes

Some notes that can help installation of the PC8 with a Panasonic matrix to a site with existing Vicon domes:

1. When star wiring a single dome from a PC8 output set the dome to RS422.
2. Daisy chaining multiple cameras from a PC8 output set the dome to RS485.
3. Some domes do not auto detect the baud rate on power up which will prevent control if the dome is not set to the same baud rate as the PC8. To force the dome to auto detect
    a. power off dome
    b. set dome to vicoax (Vicon up the coax instead of RS422/485 control)
    c. power on dome then power off after 10 second
    d. set dome to VPS and power on
4. If all else fails and you do can not control the dome just try swapping the data cable between TRA & TRB on the PC8 output. It is possible that the data cable may have a joint in a junction box between the PC8 and the dome.

– blank for your notes –

– blank for your notes –

– blank for your notes –

Other products in the Panasonic range:

PC8 Panasonic Protocol Converter – Designed to control 3rd party domes from a Panasonic control system.

RX450 Panasonic RS485 receiver – Controls 24V ac / 230V ac operated pan/tilt mechanisms from a Panasonic RS485 telemetry control system.

RX550 Panasonic RS485 receiver –
Controls 24V dc high/variable speed heads from a Panasonic RS485 telemetry control system.

RX100/Panasonic Dome interface receiver –
Telemetry interface converting BBV up-the-coax to Panasonic RS485 protocol.